



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: SEWM-FF

Mr. Frazer Lockhart
Department of Energy
Rocky Flats Office
P.O. Box 928
Golden, CO 80402-0928

SEP 29 1992

Re: Review of OU 14
Draft RFI/RI Work Plan

Dear Mr. Lockhart:

Enclosed are the Environmental Protection Agency and Colorado Department of Health technical reviews of the Draft RFI/RI Work Plan for Operable Unit 14, Rocky Flats Plant. There are many comments that need to be addressed, especially with regard to the field sampling plan.

The most general shortcoming of this plan, in addition to technical inadequacies, is that it fails to consider the protected area IM/IRA now in development or other ongoing activities which make implementation as written very unlikely. In combination with DOE's apparent inability to implement obligations defined within the IAC as documented in other correspondence, this failure reduces the work plan to a paperwork exercise which achieves only superficial compliance with established milestones. Until and unless this work plan can be integrated into DOE's overall approach to the Transition, Decontamination and Decommissioning (D&D), and Environmental Restoration (ER) of Rocky Flats, approval of the Final Workplan may not advance the ER program at Rocky Flats.

If you or members of your staff have any questions regarding EPA's comments, please contact Bill Fraser at 294-1081.

Sincerely,

A handwritten signature in dark ink, appearing to read "Martin Hestmark", is written above the typed name.

Martin Hestmark, Manager
Rocky Flats Project

Enclosures

cc: w/enc.
John Reschl, CDH
Larry Reck, PRC

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ADMIN RECORD

A-DU14-000021

1.0 INTRODUCTION

The Environmental Protection Agency (EPA) and our technical review contractor PRC Environmental Management, Inc. (PRC) have reviewed the draft phase Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Remedial Investigation (RI) work plan, Rocky Flats Plant (RFP), Radioactive Sites, operable unit (OU) number 14 (work plan) which was submitted by the U.S. Department of Energy (DOE). This work plan is dated June 1992 and was submitted on June 24, 1992. Our combined comments on the subject work plan follow. The general comments address the overall scope of the work plan. Specific comments address the technical merit of particular items. Specific comments have been grouped by chapter and keyed to specific statements by section and page.

2.0 GENERAL COMMENTS

This section contains general technical comments on the draft work plan.

1. Section 2.0 and Appendix B present current ground-water data for OU14 individual hazardous substance sites (IHSSs). However, much of the Appendix B information is not discussed in Section 2.0. For example, ground-water monitoring wells P209189, P209289, and P209389 located near IHSS 131 appear in Appendix B but are not discussed in Section 2.0.

In addition, many statements in Section 2.0 are inaccurate concerning the relationship between some of the IHSSs and ground-water monitoring wells. For example, in the text, it is suggested that well P418289 can be used for ground-water data upgradient of IHSS 161. However, this well is directly north of IHSS 161. Since ground-water flow is easterly, a more appropriate well upgradient of IHSS 161 would be P419689. These inconsistencies should be corrected so the text in Section 2.0 and Appendix B address the same topics and are correct in their references. Other inconsistencies in Section 2.0 are addressed in the specific comments.

2. The field sampling plan (FSP), Section 6.0, for OU14 does not appear to be statistically designed to meet performance measures listed in EPA's guidance for data usability in risk assessments (EPA, 1990). EPA's guidance specifies that the minimum recommended performance standards for risk assessment purposes are 80 percent confidence and 90 percent power. The text does not discuss the confidence and power or the statistical basis for the proposed number of samples in any media of concern. The statistical basis for each sampling program, and the way in which the chosen number of samples relates to power and confidence, must be included in this work plan. In addition, explanations should be provided if the minimum standards of power and confidence cannot be reached. That is, DOE should specify whether the required number of samples is too high to be

reasonable and describe the effect lower confidence and power values will have on data useability for risk assessment.

3. The EPA has requested that DOE and EG&G evaluate the existing site-wide air monitoring network Radioactive Ambient Air Monitoring Program (RAAMP). In Section 6.0 of this work plan, there is no discussion of this pending RAAMP evaluation. This survey should be completed before any new air monitors are proposed for OU14. The survey may determine that the existing RAAMP is sufficient to characterized air emissions from OU14, or that more monitors are needed.

4. The work plan for OU14 represents a thorough understanding of concepts and methodologies utilized by the EPA as presented in risk assessment guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual (Part A) (EPA, 1989). If Section 8.0 of the work plan is closely followed, human health risks associated with contaminant exposure to OU14 contaminants can be quantified in a manner consistent with other Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites. While this document provides sufficient detail to assess the overall approach, additional technical memoranda will be necessary to assess specific aspects and input exposure parameters of the quantitative analysis.

5. Because few habitats exist, OU14 will be included with the other industrial area OUs in the OU9 environmental evaluation. This approach is reasonable as presented in Section 9.0. However, the text specifically states that ecotoxicological work will not be undertaken at OU14, unless organisms present in OU14 are not present in OU9. This approach seems to differ from other work plans and discussions with RFP ecologists. To provide consistency, proposed methods should be approved by EPA before implementation.

6. Relevant and appropriate information regarding quality assurance is not included in Section 10.0. Most of the relevant information is referenced to in the Rocky Flats Plant Site-wide Quality Assurance Project Plan (QAPjP). Since the QAPjP has been approved and the final version was published in January 1992, Section 10.0 is adequate as a quality assurance document. However, Section 10.0 should only be used with the QAPjP available as a quick reference.

7. Appendix A includes memoranda on the Field Instruments for Detecting Low Energy Radiation (FIDLER) survey of RFP. The information is sparse and the maps of the survey are illegible. The utility of this information is questionable. DOE should present useful information in this Appendix or delete it entirely.

8. The most general shortcoming of this plan is that it fails to consider the Protected Area IM/IRA now in development or other ongoing activities (such as the reevaluation of the industrial

area surface water monitoring program) which make implementation as written very unlikely. In combination with DOE's apparent inability to implement the IAG as documented in other correspondence, this failure reduces the work plan to a paperwork exercise which achieves only superficial compliance with established milestones. Until and unless this work plan can be integrated into DOE's overall approach to the Transition, D&D, and Environmental Restoration of Rocky Flats, approval of the Final Workplan may be futile.

3.0 SPECIFIC COMMENTS

1. Page 2-5, Section 2.2. The last paragraph on this page states that potential areas of concern (PACs) are discussed in the following sections. This document does not discuss PACs. DOE should address PACs that may be included in OU14.
2. Page 2-20, Section 2.4.1.4. This section states that the southern portion of IHSS 117.3 overlaps IHSS 160. According to the Historical Release Report (EG&G, 1992), the southern portion of IHSS 117.3 ends at IHSS 160. DOE should verify the correct boundaries for IHSS 117.3 and IHSS 160.
3. Page 2-22, Section 2.4.2.3. This section states that OU12 IHSS 120.1 overlaps IHSS 160. However, a map from the Historical Release Report (EG&G, 1992) shows IHSS 120.1 adjacent and to the west of IHSS 160. DOE should verify the correct boundaries for IHSS 120.1 and IHSS 160.
4. Page 2-23, Section 2.4.2.4. This section states that contamination could be migrating from IHSS 120.2 to IHSS 161. The text does not mention that IHSS 120.2 is entirely enclosed by IHSS 161. DOE should state the location of IHSS 120.2 in relation to IHSS 161.
5. Page 2-38, Table 2-3. The description of the associated IHSS for borehole P313489 states that P313489 is located in the northwestern corner of IHSS 160. According to Figure 2-27, P313489 is located in the northeastern corner of IHSS 160. DOE should resolve this contradiction by correcting the table or the figure.
6. Page 2-41, Table 2-3. The description of the associated IHSS for borehole P119389 states that P119389 is downgradient of IHSS 156.1. According to Figure 2-27, P119389 is to the west and upgradient of IHSS 156.1. DOE should resolve this contradiction by correcting the table or the figure.
7. Page 2-42, Table 2-3. The description of the associated IHSS for borehole P314289 states that P314289 is located in the northeastern corner of IHSS 160 within the IHSS boundaries. According to Figure 2-27, P314289 is located outside of IHSS 160

and toward the southeast. In addition, this borehole is downgradient of IHSS 160. DOE should resolve this contradiction by correcting the table or the figure.

8. Page 2-47, Table 2-3. The description of the associated IHSS for borehole P418289 states that P418289 is located in IHSS 161. According to Figure 2-27, P418289 is located north of IHSS 161 and northwest of IHSS 160. DOE should resolve this contradiction by correcting the table or figure.

9. Page 2-52, Table 2-4. The description of the associated IHSS for borehole P115589 states that P115589 is located east of IHSS 156.1. According to Figure 2-27, P115589 is located southeast of IHSS 156.1. DOE should resolve this contradiction by correcting the table or the figure.

10. Page 2-57, Table 2-4. The description of the associated IHSS for borehole P314289 states that P314289 is located in IHSS 161. According to Figure 2-27, P314289 is located east of the IHSS 161 and southeast of IHSS 160. In addition, chemical data may represent downgradient concentrations since ground-water flow is to the east under IHSSs 160 and 161. DOE should resolve this contradiction by correcting the table or the figure.

11. Page 2-66, Table 2-4. The description of the associated IHSS for borehole P418289 states that P418289 is located in IHSS 161. According to Figure 2-27, P418289 is located north of IHSS 161 and northwest of IHSS 160. DOE should resolve this contradiction by correcting the table or the figure.

12. Page 5-10, Section 5.7. This section states that preliminary remediation goals (PRGs) will be calculated assuming future land use is industrial. This assumption is erroneous and requires negotiation between DOE, EPA, and the Colorado Department of Health (CDH). DOE should use the most conservative land use scenario (residential) or state that the type of land use for calculation of PRGs will be determined at a later time.

13. Page 6-5, Section 6.3. This section discusses task 2 of the FSP. It includes the use of field results to revise the initial grid pattern. However, the text does not describe intrusive sampling methods under concrete or pavement. DOE should outline the approach to sample under-pavement soils during task 2.

14. Page 6-11, Section 6.4.2. This section discusses the sampling procedures to be followed for unpaved surfaces. There is no discussion of soil scrapings in the paved areas. According to historical data, most of the contaminated soil at IHSS 156.1 was spread underneath the pavement. Thus, it is necessary to test soil under the paved area. DOE should include procedures for collecting soil samples under the pavement.

15. Page 6-12, Section 6.4.2. This section describes field sampling for the Building 334 parking lot (IHSS 156.1). It

states that boreholes will be grouted, yet the use of soil borings for IHSS 156.1 is not discussed in the text, Table 6.1, or Figure 6-3. Additionally, the Interagency Agreement (IAG), Table 5, states that soil dump area soil borings will be drilled to a depth of 3 feet located on 50-foot centers. This section does not follow the IAG requirements. DOE should correct the text so it complies with IAG requirements outlined in Table 5 for soil borings or provide a suitable rationale for the change.

16. Page 6-15, Section 6.4.6. This section describes the sampling for IHSS 164.1 and states surface soil and borehole samples will be collected using 25-foot centers. In Table 5 of the IAG, the text states that surface soil and borehole samples shall be collected at locations indicated as radioactive after the radioactive survey. This section does not follow IAG requirements. DOE should revise this section to include, at a minimum, the sampling requirements outlined in the IAG for IHSS 164.1, or explain why an alternative approach is warranted.

17. Page 6-16, Section 6.4.7. Same comment as 16 applied to IHSS 164.2.

18. Page 6-17, Section 6.4.8. Same comment as 16 applied to IHSS 164.3.

19. Page 6-32, Section 6.8. The text states, "If areas of surface soil contamination are identified at OU14 during field activities, suspended particulate data from these sources will be evaluated for applicability to OU14 inhalation exposure evaluation. If appropriate, these data will be used to provide a conservative estimate of total suspended particulates and respirable particulates in the vicinity of OU14." These statements are vague. The criteria for determining surface soil contamination should be defined. Also, the determination of a conservative estimate of total suspended particulates and respirable particulates should be clearly described.

20. Page 8-5, Section 8.1.2. The exposure pathways for surficial soil contaminants are incomplete. Receptors could be exposed via direct dermal contact, ingestion of vegetables following uptake of contaminants by plant roots, or consumption of livestock following grazing on contaminated vegetation. Additionally, contaminants in the unsaturated zone could potentially leach into ground water which could lead to contaminant exposure during domestic ground-water use. These issues should be addressed in the work plan.

21. Page 8-6, Section 8.2.1. The work plan should not include field conditions and sample documentation, such as the chain-of-custody form and standard operating procedures (SOPs) in the human health risk assessment (HHRA). Although the site description and detailed information identifying sample locations should be included in the RI report, the chain-of-custody form and SOPs are extraneous to the risk assessment. This information

is best presented elsewhere in the RI report, preferably in a section that precedes the risk assessment.

22. Page 8-9, Section 8.2.4. The flow chart and sequence of selecting contaminants of concern (COCs) has major design flaws and violates the established principals detailed in RAGS (EPA, 1989). No class A carcinogens should be eliminated from the HHRA, even if the frequency of detection is less than 5 percent and the on-site concentration is not statistically different from background. As the flow chart indicates, the order of applied criteria could potentially allow such a decision. By the time the carcinogenic criteria are evaluated, carcinogens could have already been eliminated. RAGS states that "...before eliminating potentially carcinogenic chemicals, the weight-of-evidence classification should be considered in conjunction with the concentrations detected at the site. It is practical and conservative to retain a chemical that was detected at low concentrations if that chemical is a Group A carcinogen." The statement in the work plan that the carcinogenic screening step "...does not eliminate a chemical from further consideration; instead, it automatically identifies carcinogens for inclusion in the risk assessment, even if detected at low concentrations," is misleading, since potential human carcinogens previously could have been eliminated.

Only inorganic compounds should be eliminated from consideration based on background concentrations. RAGS explains that, "In general, comparison with naturally occurring levels is applicable only to inorganic chemicals, because the majority of organic chemicals found at Superfund sites are not naturally occurring (even though they may be ubiquitous)." It goes on to assert that, "Unless a very strong case can be made for the natural occurrence of an organic chemical, do not eliminate it from the quantitative risk assessment for this reason."

Applying the "one tenth the value of identified health protective criteria" benchmark is an unconventional procedure not ordinarily used to eliminate chemicals from the COCs list in the HHRA. A more commonly applied method is the concentration-toxicity screen, which has been devised by EPA to accomplish the same goal, and is described in considerable detail in RAGS (EPA, 1989). It is a much more reliable screening procedure since it calculates the specific risk associated with individual on-site contaminants and ranks them according to their individual contributions to the overall risk in the media of concern. It should be noted, furthermore, that RAGS explicitly stipulates that the contaminant concentration used in the screening process "should be the maximum detected concentration" and not the mean concentration. The HHRA in the work plan should follow RAGS.

23. Page 8-15, Section 8.3.1. Although the work plan adequately identifies the most likely current human receptor population, inhalation of vapor phase contaminants and exposure to external gamma radiation have been omitted as possible routes of exposure.

The hypothetical future target population does not represent the conservative assumption that residential land use is possible. Even though the DOE's current projection for future land is as an industrial park and an ecological preserve, it has not been legally established in the form of a covenant or land use restriction. Therefore, it should be conservatively assumed that residential land use is possible and the potential human health risks to this population should be estimated. This estimate can then be compared with other land use scenarios such as current and future off-site residents and future industrial and ecological site workers.

24. Page 8-18, Section 8.3. Although only complete pathways need to be included in the quantitative risk assessment, reasons for disqualifying exposure pathways should be presented in detail.

25. Page 8-26, Section 8.4.3. It is not clear what is meant by "...excess cancer risk is associated with regulatory agencies" and "The results of any such deviation will be presented in the technical memorandum and the HHRA report." This paragraph should be clarified since it appears to draw into question EPA's weight of evidence carcinogenic classification. These classifications were developed after rigorous analysis by scientists within the Carcinogenic Risk Assessment Verification Endeavor (CRAVE) group and should not be altered.

26. Page 8-30, Section 8.5.2.1. The text states that "...no attempt will be made to add carcinogenic risk across the three pertinent cancer classes." This contradicts the methodology presented in RAGS. Cancer risks for class A, B, and C carcinogens should be summed regardless of the individual weight of evidence classification for each chemical. Although RAGS acknowledges that this limits the methodology which can introduce uncertainty into the risk assessment, carcinogenic risks associated with exposure to more than one chemical should be added. The specific limitations of this analysis as it applies to OU14 procedure can be included in the uncertainty analysis.

27. Appendix B, IHSS 162 Groundwater Data. In the ground-water data for IHSS 162, analytical results from well 0187 samples are listed. This well is downgradient of IHSSs 160, 161, and 164.1. IHSS 160 has polychlorinated biphenyl (PCB) soil contamination, and contaminants may have migrated downgradient in the ground water. Well 0187 should include analyses for PCBs to check for the presence of PCBs in the ground water. In addition, DOE should include a section in Appendix B for ground-water data at IHSS 160.

28. Appendix B, IHSS 156.1 Groundwater Data. In this section, ground-water data from well 4486 are given for IHSS 156.1. However, well 4486 is directly south of IHSS 156.1. With ground water flow to the east, these well data would be more appropriate for characterizing ground water upgradient of IHSS 160 or 161.

DOE should justify the use of well 4486 ground-water data for
IHSS 156.1 or remove them from this section.

4.0 REFERENCES

CDH, EPA, DOE, 1991. Rocky Flats Interagency Agreement. January 22, 1991.

EPA, 1989. Risk Assessment Guidance for Superfund, Volume I Human Health Evaluation Manual (Part A), Interim Final. EPA/540/1-89/002, December.

EPA, 1990. Guidance for Data Useability in Risk Assessment. Office of Solid Waste and Emergency Response. EPA/540/G-90/008.